



INTERDISCIPLINARY COLLABORATION OF NURSES AND PHARMACISTS IN MONITORING CHEMOTHERAPY SIDE EFFECTS IN ONCOLOGY PATIENTS: THE INTERPROFESSIONAL TEAMS IN CONTROLLING DRUG RELATED CONSEQUENCES IN ONCOLOGY PATIENTS

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Abstract

Objective: This nursing research project describes the impact of interprofessional cooperation of nurses and pharmacists on the management of side effects of chemotherapy in the patients with a focus on comfort, the control of symptoms and compliance with the treatment plan.

Methods: The study made use of qualitative methodology, which was complemented by semi structured interviews and focus groups with 25 patients, 10 nurses and 5 pharmacists from a tertiary hospital. Thematic analysis was used for data analysis to describe recurrent themes regarding patient perspective and the interaction.

Results: Findings of the study indicated that the collaborative model of care improved patient's comfort through custom made symptoms elimination issues as well as assisting in building trust thereby improving adherence. Nonetheless, communication drawbacks relating to lack of time and overlap of roles were observed indicating the need for specific protocols to be developed for joint collaborations.

Conclusion: There is evident as well as significant improvement in the management of symptoms and emotions of oncology patients, which can be simplified by efficient collaboration between nurses and pharmacists. Therefore, the use of standardized protocols is necessary to improve coordination and collaboration among patients and professionals.

Keywords: interprofessional collaboration, chemotherapy, oncology, side effect management, nurse-pharmacist teamwork, patient adherence

Introduction

According to the WHO, cancer is one of the most common conditions to lead to death and affect people with chemotherapy being a preferred mode of treatment for cancerous patients. It is essential to treat cancer with histology to reach the best results, especially since it has an adverse impact on the culture and economy of a country. (Silveira et al., 2021). It is a fact that any disease affects the overall welfare of a patient, but with oncology, chemotherapy specifically leaves a scar due to intense nausea, fatigue, and hematologic toxicity which has malevolent effects on wellbeing and quality of survival

(Muluneh et al., 2018). In some deadly cases, these side effects trump cancer entirely and one is forced to discontinue medication (Drami et al., 2021). Therefore, it is essential that oncology patients have effective management of chemotherapy-induced adverse effects for successful treatment.

With global developments concerning the epidemiology and treatment of cancer, the shift towards recognizing nurses and pharmacists for taking a more holistic approach is something that has become common. Chemo-induced symptoms in patients comprehensively need to be managed and antibiotics are a vital part in managing such symptoms. Nurses play a vital role in assisting patients in terms of providing adequate care throughout the chemotherapy session and drugs and sometimes serve as a main point of contact for the patients who are taking this form of treatment (Young et al., 2020). Pharmacists, however, are invaluable in the management of different drugs, adjustments of doses, and informing about drug-drug interactions that can worsen the side effects of the chemotherapy (Coutsouvelis et al., 2020). In this way, the two groups of specialists will be able to accomplish the elaboration of a care that is focused on the morphophysiological parameters of the patient as well as on the psychological aspects allowing more comfort and ease to comply with treatment.

However, despite the apparent positive outcomes, few studies have looked closely at the role of collaboration between nurses and pharmacists in the management of chemotherapy related side effects in cancer patients. According to the findings, when professionals work as a team in healthcare environments, there are positive results, such as better patient outcomes, greater satisfaction, and fewer medication-related mistakes (Cox, et al., 2016; Gorin et al., 2017). But the problem is that there is little in the literature about the outcomes of such cooperation when working in the field of oncology, and especially in the context of problems such as side effects that affect adherence to treatment and the patient's daily activities.

As such, this research in particular aims to investigate how nurse-pharmacist collaboration can optimize the management of cancer patients' side effects from chemotherapy in order to enhance the comfort level and treatment adherence of the patients. By assessing these joint efforts, this one hopes to identify ways of providing oncology care that could be more effective and focused on patients.

Literature review

1. Introduction to Chemotherapy-Induced Side Effects

Chemotherapy still remains one of the pivotal therapies offered to many cancer patients; however, it comes with a host of other debilitating side effects that not only make it difficult for patients to bear with the treatment, but also succumb to its harshness (Cancer Research UK, 2021). Other commonly documented problems associated with such therapies include gastrointestinal disturbances, fatigue, hematologic toxicities such as neutropenia, anemia, peripheral neuropathy and cognitive problems (American Cancer Society, 2021; Fleming et al., 2022). Notably, these adverse effects only predispose the cynical battles these patients go through, but also incline them to dire psychological ramifications that are likely to affect their adherence to therapy which in consequence can diminish the overall effectiveness of chemotherapy (Young et al., 2020).

Research has reported that many patients are unable to cope with their symptoms, which results in the patients requiring some form of supportive care interventions. (Gorin et al., 2017). These highlights the primary aim of this research paper which is to highlight non smoking supportive care strategies in peripheral neuropathy management and alleviate the use of medications.

2. Recent Methods in Cancer Care for Dealing with the Side Effects of Chemotherapy

Other methods include anti-nausea medications, medicines, and nutrition. Erythropoietin stimulating agents help curb chemotherapy induced anemia while nausea is treated through prescription of anti-emetics (Coutsouvelis et al., 2020). However, these approaches have limitations. In some cases, patients will develop a tolerance to or experience side effects from the supportive drugs, which can be an issue in their entire regime. Furthermore, it has been noted that this area of care is poorly and non-uniformly applied and practiced within a single practice letting alone the wide variability across different providers.

Follow-ups and symptom management seem to be the key to providing that support, although those nurses do find time to attend to their practicing nurses where possible. Ideally, such patients suffering from untreated risks should be cared for in an individualized manner coupled with comprehensive symptom management undertaken in sustained specialized supervision and an effective treatment regimen (Gorin et al., 2017). The need for interprofessional collaboration has thus arisen to try and increase the uniformity in side effects management.

3. Role of Nurses in Hard Oncology and Stick-Side Effects Management

Oncology nurses are essential in directly managing the adverse effects of chemotherapy, managing symptoms and emotions while providing care to the patients. Coworkers provide intricate, one-on-one care and do not have a supplementary support person. They report all patients' adverse effects, while the primary care nurse is responsible for administering supportive care with minimal adverse effects (Young et al., 2020). Also, nurses assist in teaching the patients on how to independently care for the side effects, for example, how to manage nutrition, activity and pain relieve techniques (Muluneh et al., 2018).

There are promising results when the nurses become involved in monitoring their patients and also supporting them through treatment as this has depicted a large improvement in the outcomes presented by the patients (Silveira et al., 2021). Gorin et al. (2017) further revealed that oncology patients given nurse-led intercessions on symptom management reported mild nausea and fatigue compared to those under normal care. Unfortunately, their efforts may not mean much in a situation where nurses have to take care of complicated side effects all alone and collaborations with other professionals such as pharmacists may raise eyebrows.

4. Role of Pharmacists in the Provision of Oncology and Related Medicines Services

As clinical specialists in oncology, pharmacists have an important role in managerial aspects of oncology, including the dispensing and administration of chemotherapy drugs, drug-related problems and supportive care issues (Coutsouvelis et al., 2020). They assist in management and alteration of chemotherapeutic drug doses and drug combinations according to the emerging side effects and characteristics of the patients working and communicating with the oncologists (Drami et al., 2021). They are also involved in counseling patients on medications about their safe use, the side effects of the drugs and the measures to promote compliance.

There is evidence that pharmacists' interventions in the practice of oncology increase the safety and effectiveness of chemotherapy and diminish the chances of errors occurring (Silveira et al., 2021). For example, a study by Coutsouvelis et al. (2020) in which oncology patients had their pharmacist administer the medication reviews showed that there was a 30% decrease in drug related complications and that pharmacists' participation is indeed a major factor in maximizing the outcomes for the patients. However, studies have also indicated that pharmacists can make an even more positive impact when they are part of an interprofessional group.

5. Interprofessional Collaboration in Oncology Care: How Effective is it?

As shown by Cox, et al. (2016), interprofessional collaboration is effective in patients with multifaceted needs such as those in oncology. Black and Kulkarni (2020) state that when nurses and pharmacists team up, they help to expand the range of skills and expertise for the patient which leads to better patient outcomes. What is more, Gorin et al. (2017) corroborate evidence of combined efforts offering timely adverse effect management, effective management of symptoms, and better education for patients concerning their treatment.

Potentially, multicultural teams have greater success managing the side effects of chemotherapy and can lead to better patient outcomes. There is general consensus provided by Gorin et al. (2017) and Fleming et al. (2017) with regard to the successful management of side effects in patients receiving maternal care from nurses and pharmacists. In other studies, patients are more satisfied with their treatment and require fewer interruptions to their chemotherapy between treatments.

6. Existing gaps in research and the reason why further investigation is required.

Despite the documented advantages of practicing interprofessional communication in the field of oncology, the research on Nurse-pharmacist collaboration Practices in chemotherapy supportive care is scant. A limited number of studies have addressed these collaborations and how they affect patients' adherence and quality of life (Silveira et al., 2021). Furthermore, it is noted that there is a lack of studies that establish models and resources needed for collaborative care approaches in the field of oncology.

This study intends to address such gaps by examining the practice patterns of nurse-pharmacist partnership in providing care related to the chemotherapy adverse reactions and its influence on patient's comfort, adherence to treatment and overall outcome. It is our expectation that understanding the processes and advantages of this collaboration will be helpful in developing the future improvement of oncology care.

Research Methodology

Study Design

The strategy employed in this study was mainly qualitative in order to understand the experience and views of chemotherapy patients, nurses and pharmacists in the management of chemotherapy related adverse events in a collaborative manner. The study was conducted over six months in Tertiary Hospital and intended to delve deeper into the impact that combined efforts by nurses and pharmacists have on patients' comfort, understanding of side effects, and compliance to treatment.

Participants

The sample comprised of 25 oncology patients receiving chemotherapy along with 10 nurses and 5 pharmacists practicing in the oncology department in a tertiary hospital. Patients were selected according to their history of experiencing chemotherapy side effects and were willing to come forward and share their experience. Nurses and pharmacists were included due to the fact that they were directly involved in providing chemotherapy and managing side effects thereof to oncology patients. A purposive sampling approach was adopted to allow diversity in perspectives, taking into account the differences in clinical characteristics of patients, types of treatments, and types of side effects reported.

Data Collection

The data were collected through individual, in depth, semi-structured interviews and focus groups in order to obtain detailed accounts of the practices of patients, nurses, and pharmacists, and the interactions between these professionals.

1. In-Depth Interviews with Patients: All patients were interviewed individually, on a semi-structured basis, for a duration of about 45 to 60 minutes. This interview guided patients to discuss their experiences with the side effects, the level of discomfort they experienced, the extent to which they understood the side effects and its management, and the care provided to them including that from nurses and pharmacists working in a team. Patients were also asked open-ended questions about how the collaborative management affected their experience and compliance with the treatment.

2. "Focus Groups with Nurses and Pharmacists": Two focus groups, one with nurses and the other with pharmacists, were conducted in the course of one and a half hours each. These sessions sought to assess the interprofessional approach to the provision of medical services from the point of view of its practitioners' personalities, including advantages, barriers to integration and joint activities. Participants were asked about their specific roles in the triage of side effects, communication and joint efforts and what they believed to be the outcome of joint patient management.

3. "Observational Field Notes": During his/her normal round in the hospital, the researcher attempted to observe and record the interactions which occurred in the presence or in the absence of side effects among the nurses, pharmacists and the patient. Field notes were made in an attempt to detail

communication modes, decision making and patient problem solving strategies utilised by nurses and pharmacists in the course of their patient interactions. Observational procedures were gentle enough not to interfere with normal contact, and permission was secured for all participants.

Data Analysis

Data obtained from the interviews, focus groups and field notes gathered through participating observation were subjected to thematic analysis. The tapes of the interviews and focus group discussions were transcribed verbatim as were the observational notes and complementarily to this analysis. Analysis was done by means of the following steps:

1. Familiarization: Transcripts were read several times for the purpose of general comprehension of data and comments were made.
2. Also, Coding: A coding framework was made based on major and recurring words and themes in the data. All transcripts were coded manually to extract content associated with aspects of patients' experiences, interprofessional work and side effects management issues arose during the care.
3. Also, Theme Development: Well structured codes were abstracted from the codes so that they could be managed easily; for example "patient empowerment through education", "input from everyone improves management of symptoms", "interprofessional relations are not without communication barriers".
4. And Refinement and Interpretation: All transcripts were reviewed again to find and edit out themes from the findings that did not meet the set data standards. Other authors have literature available on interprofessional interactions in the provision of care to oncology clients which helped in understanding the results.

Ethical Considerations

The research received approval from the ethics committee which ensures ethics for research as regards to humans. The Participants were completely briefed and signed informed consent letters. They were told that they were free to withdraw from the study at any time and that their identities would remain confidential. All subjects were assigned fictitious names to maintain anonymity and all other means such as audio tape and analogue recordings were also placed in a secure environment.

Reliability of Your Data

To improve the trustworthiness of the study, the following procedures were carried out:

1. Output Validation: Interview, focus groups and observations data were integrated in order to confirm the results obtained and ensure all aspects of the research problem were adequately addressed.
2. Comparison of Findings with Other Subjects: Summaries of findings were provided to several participants to validate interpretations and to provide the opportunity for the introduction of any further insights or corrections.
3. Use of Focus Groups: Conclusions were reviewed by colleagues familiar with qualitative research in order to limit errors of judgment and assure quality of work in theme formation.

Limitations

Similarly, the result of this study could be applied to other settings as patient's experiences could vary widely depending on the perception each individual has of the care received. Another area for further research would be the impact of a nurse-pharmacist collaboration in different oncology units for enhancing the understanding of collaborative practices in managing side effects of chemotherapy.

Findings

During the qualitative analysis, five themes were identified that represented the relational aspects of collaborative care practice: (1) Boosted Rehabilitation Outcomes with Work Assistance, (2) Patients' Control and Self-Assurance, (3) Affective Assistance and Relationship Development, (4) Interoperability and Collaboration Issues, and (5) Suggestions on How to Strengthen Collaborative

Care. For further understanding of the experience of participants in the study, the major theme is further analysed through sub-themes.

Theme 1: Enhanced Symptom Relief through Collaboration

Sub-theme 1.1: Personalized Side Effect Management

Nurses and pharmacists were reported to collaborate for the purposes of customizing side effects, which meant that their conditions were taken into account and managed separately. Decisions on drug alteration and adjunctive care intervention were also carried out much faster.

- Patient 2: "It was not solely about controlling the vomiting, it was about finding out what I felt worked best for myself. The nurse did assess whether it helped, and the pharmacist prescribed the medicine according to how I felt."
- Pharmacist 1: "We attempted to make each of care plan more patient oriented. I would liaise with the nurse and adjust the anti-emetics or the pain medication according to the symptoms the patient presented with."

Sub-theme 1.2: Symptom Screening Involves Taking Pre-emptive Measures.

Most of the respondents appreciated the ability to oversee the management of anticipated effects noting that it allowed them to take care of matters ahead of time rather than waiting for them to escalate. This also frequently resulted in a decrease in the intensity of the symptoms that were experienced as well as the likelihood of more complex issues forming.

- Patient 8: "Even before I began to describe my symptoms, they were already asking me about it. That made me feel like they were on top of it, which was quite comforting."
- Nurse 5: "Many times, we were able to intervene early to prevent patient complaints due to having regular conversations with the pharmacist."

Theme 2: Patient Empowerment and Confidence

Sub-theme 2.1: Improved Understanding of Treatment and Side Effects

Patients from the focus group described how education provided by nurses and pharmacists increased their understanding of the course of therapy and the reactions associated with it. Such knowledge helped reduce anxiety and increased the feeling of control over the situation.

- Patient 6: "I had more control over the situation because they told me what was going to happen. Knowing what to expect and what not to expect made me a little less anxious."
- Nurse 3: "We tried to educate patients so that they understood reason behind each drug', so we did not want patients to have the impression that things were just happening to them."

Sub-theme 2.2: Confidence in Self Management and Adherence

Equipped with the information, patients found it easier to manage the development of side effects on their own. This, in turn, increased compliance with treatment, as the patients felt able to control the symptoms that were provoked.

- Patient 14: "The instant I was given a little control over how to soothe my own nausea or pain by implementing certain measures in my home routine, I felt that the whole challenge became manageable."
- Pharmacist 4: "Our aim was to empower patients not only with instructions on what needed to be done but a guidance that whenever things became tough they could approach us as well."

Theme 3: Emotional Support and Relationship Building

Sub-Theme 3.1: Uniqueness at the Contact – Providing Emotional Closure in the Routine Setting of the Home."

It was the responsive commitment of both the nurses and the pharmacists that alleviated the patients' emotions during their most sensitive moments.

- Patient 9: "The best thing was that when my chest got the weight, both of them were there to know how I was doing. It's not like they were only treating my side effects, they were treating me as a person, and for that, I can't thank them enough."

- Nurse 7: "The relationship that we had developed with patient was core to patient care. Knowing that both of us here for them gave them a sense of assurance which made a difference."

Sub-Theme 3.2: The impression of the Care Team – Feeling of Trust Across the Care Team

A number of patients sought a very high level of trust with their health care team. Joint and followed care was a priority among them. Trust made them secure in applying the recommendations of the treatment.

- Patient 12: "My faith in them was strong due to the fact that they both cared about my health. I knew they were always prepared to help me, which was a good reason for me to adhere to the treatment."

- Pharmacist 3: "We wanted to develop an environment where the patients can say anything in the knowledge that we would deal with it together."

Theme 4 Communication and Coordination Challenges

Sub-theme 4.1 Time Pressures and Organisational barriers

It was remarked by both the nurses as well as the pharmacists that sometimes heavy population and workload made it metabolism communications possible. However, time constraints mostly had a negative impact of working together as closely as they would have liked.

- Nurse 1: "Sometimes too much happens in one day. I may not have time to discuss everything with the pharmacist and at times this affects the level of care extended to patients."

- Pharmacist 2: "I make it a point to go and ask the nurses about it, and there are times when I am busy and do not manage to keep as active contact as I wish to."

Sub-theme 4.2 Cases Where the Patients Have Been Given Repeated Reassurances by Nurses and then by the Pharmacists for Different Issues

It sometimes happened that patients were confounding who to ask for what because nurses or pharmacists would sometimes advise the same aim. Both nurses and pharmacists were of the opinion that better defined roles would be a plus in this regard.

- Patient 13: "I suppose I started having questions as to whether the nurse or the pharmacist should be contacted. I suppose both of them were in the wrong bit it was rather helpful to have them around, but I also find it disturbing."

- Nurse 9: "More often than not we both end up explaining the same thing to the patients. I think clearer guidelines could prevent us from the redundancy and confusion."

Theme 5: Strategies for Enhancing Interprofessional Relationships

Sub-theme 5.1: Collaboration Protocols Should be Established

Nurses and pharmacists would like to have inter professional collaboration protocols that will increase efficiency in communication and enhance the continuum of care.

- Pharmacist 5: "All we need is one structure communication protocol for each patient, and we simply know what every patient requires and who may have missed out on any points."

- Nurse 10: "A framework to facilitate collaboration will be a timesaver, and help eliminate the chances of moderating misunderstandings or duplicated efforts."

Sub-theme 5.2: Further Education on Collaborative Models of Care

Participants noted that additional training on collaborative care models would be important for patients as well as the members of staff. This training would improve appreciation of each other's roles and the overall quality of teamwork.

- Pharmacist 6: "It would be beneficial for everyone to participate in training programs that teach how to work on interprofessional teams. If we all know the others, we can better support the patients."

- Nurse 12: "If there were workshops on collaborative care, it would really help us understand how best to work together for the patients' benefit."

Discussion

This study sought to determine the effect of interprofessional teamwork between nurses and pharmacists in managing patients who underwent chemotherapy by stressing patient comfort, symptom, and treatment adherence. The results add to the understanding of the positives and negatives of working with in an interprofessional team in the area of oncology. It dissects care from patients' perspectives and critically evaluates aspects of care giving that can be improved.

Management Symptoms to Enhance Patients' Comfort Levels

According to the results, patients were reported to be more comfortable and better controlled their symptoms when working with nurses and pharmacists as a team. Care that was more proactively monitored and more tailored to the patient's needs on a one-on-one basis was associated with a marked lowering of side effect severity and this is consistent with other studies that have shown the benefits of interprofessional care (Coutsouvelis et al., 2020; Fleming et al., 2022). The use of preemptive measures for side effects was pivotal in ensuring patients were more comfortable as both nurses and pharmacists had the requisite experts to customize measures for each patient. This finding concurs with literature that suggests inter and intra professional collaboration enhances the quality of holistic patient care, particularly in dealing with patients with oncology (Gorin et al., 2017).

Patient Education and Supportive Self-Confidence through Self-Management Strategies

An important result was the increased empowerment of patients through education and assistance from nurses and pharmacists as well. Patients indicated that they were more capable of managing the side effects on their own at home further boosting their compliance to the chemotherapy protocol. This is consistent with previous studies, which demonstrate how the education of patients by different healthcare professionals provides them with a sense of control and readiness (Muluneh et al., 2018). Importantly, the combination of educational materials made the patients feel more comfortable through reduced anxiety and uncertainty regarding the side effects. The two professional sources of information may have reinforced the patients' comprehension since they heard the same messages that encouraged them to cope with the symptoms in the satisfactory way.

Emotional Support and Relationship Building

Furthermore, the relevance of emotional support and relationship building emerged in the context of collaborative care. Patients reported having emotional peace when both the nurses and the pharmacists were regularly involved with them and such consistent involvement built great supportive mechanisms. Previous research has shown that healthcare providers' trust and rapport can greatly affect the patients' satisfaction and compliance to treatment (Young et al., 2020). In this particular research, the two pronged support enabled the patients to experience a wider scope of care which was both physical and emotional. This suggests that through interprofessional collaboration, emotional support may be as important if not more than management of the patient signs in improving the overall experience especially in the highly stressful environment of oncology care.

The Problem in Interpersonal Relationships

Regardless of the advantages presented here, issues of communication and interprofessional working relationships between nurses and pharmacists emerged as an important topic. Both respondent groups mentioned that there were time limits that affected the communication processes which could also affect the delivery of the care and its consistency. This finding is consistent with studies indicating that workload and time constraints are routine hindrances to efficient collaboration across disciplines (Fleming et al. (2017). Furthermore, despite patients occasionally inquiring which specialist was to be consulted when a need arose, it speaks to the gaps which ought to be filled pertaining to the bi-

directional communication channels and general scope of practice, and responsibilities. The evidence supporting the efficacy of interprofessional collaboration for patient welfare is overwhelming, however such points need to be taken into consideration as the potential benefits of structured processes encompassing workflows and clear definitions of the roles are indicated negating the tension between collaboration and role conflict which is stressful (Cox, et al., 2016)

Suggestions on How to Strengthen Collaborative Care Approach

The concerns identified by the participants can be resolved through establishing effective training and structured collaboration protocols. Having standardized protocols regarding communication and notation of roles might enhance the division of work and the interdisciplinary process overall. Such suggestions correspond with the literature on interprofessional care in the sense that there are basic principles which support interprofessional teamwork in practice (Gorin et al., 2017). After that, it was also made clear that both professional groups did advocate interprofessional education, in this case collaborating with other professionals, that in nursing as well in pharmacy is required. These recommendations point to the fact that precautions are necessary in order to increase the quality of care by removing operational obstacles to joint approaches.

Practical Implications and Further Research Opportunities

The findings of this study have a number of implications for practice in oncological care. First, they stress on the importance of collaboration between practitioners in the course of management of oncology patients with complex symptoms, managing patient's wishes and feelings, and during their treatment. It may be necessary for all health care organizations to integrate written collaboration agreements and education into the nurses and pharmacists practice. This is an encouraging conclusion and when inter professional teams expand to include other disciplines such as social workers or dietitians, the care of oncology patients has the potential to improve further.

As part of their future work, researchers could also widen the scope of this research in terms of interprofessional impact by including other cancer care models such as home-based chemotherapy programs to assess whether these findings are applicable. Additionally, further studies could examine specific collaboration models so as to create a culture of best practices in the protocols of care. Quantitative studies gauging patient outcomes with collaborative care models may also be used to supplement this qualitative study in the sense that interprofessional care's impact in the course of care of oncology patients would be best understood.

Limitations

This research has some limitation it is essential to emphasize. The research was done in one tertiary hospital and this explains the limited generalization of the findings to the other contexts in the health care systems. Additionally, the sample size was somehow small, and patient experiences were generated and interpreted through the lens of individual interpretations of care. Future directions of research will require larger studies that are multi-site and thus better able to reflect the diversity of patient encounters.

Conclusion

End-of-life care requires a dedicated palliative and hospice nursing team, therapists, and social workers to provide humanitarian assistance. The challenges of the scope of work and practice of perseverance and resilience should be enabled across multi-disciplinary teamwork. Overall, nurse-pharmacist collaborative practice improves care quality and management of side effects from chemotherapy, in particular facilitated care and educating patients and offering emotional and psychological support.

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